PATENT ABSTRACTS OF JAPAN

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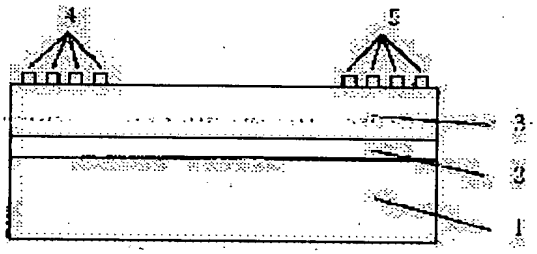
(71)Applicant : SEIKO EPSON CORP
(72)Inventor : HIGUCHI AMAMITSU
IWASHITA SETSUYA
MIYAZAWA HIROSHI

(54) SURFACE ACOUSTIC WAVE DEVICE

(57)Abstract:
PROBLEM TO BE SOLVED: To solve problems of a conventional surface acoustic wave device that cannot have made a k2 compatible with a sound velocity and a temperature characteristic because a KNbO3 crystal substrate is excellent in the k2 but its sound velocity is slower than that of a SrTiO3 substrate or a CaTiO3 that belongs to the same perovskite group oxide as the KNbO3 crystal substrate and its temperature characteristic is inferior to that of a SiO2 substrate and that cannot have produced epitaxial growing on a Si substrate that is important in the monolithic processing in a direction of a pseudo cubic system (100) equivalent to that of a Y-XKNbO3 crystal substrate.
SOLUTION: A K1-xNaxNb1-yTayO3 ($0 \leq x \leq 1$, $0 \leq y < 1$) piezoeletric thin film 3 oriented as the pseudo cubic system (10) is epitaxially grown on a Si substrate oriented in the (100) via a NaCl group oxide MO buffer layer 2 to realize the surface acoustic wave element having a high k2, a high sound velocity and a zero temperature characteristic.



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